11/26/13 Agenda

- Hand back paperwork

- Review Chapter 3 Test

- Section 5.1 day 3
    - Finding Rate of Change from a Graph
    - Slope

- Homework - Worksheet 5.1 day 2

5.1 - Finding Rate of Change from a Graph

Warm up:

Find the rate of Change from the following tables

$\frac{\Delta y}{\Delta x}$

x	y
0	2
2	3
4	4
6	5
10	7

2, 2 / 1, 1

R of C $= \frac{1}{2}$

x	y
3	10
4	8
6	4
7	2
8	0

Rate of Change:

Rate of Change is the amount one quantity is changing in relation to another quantity.

Lets go back to our first example from Friday and graph it using the table of points.

(x, y)

$y = 2x + 2$

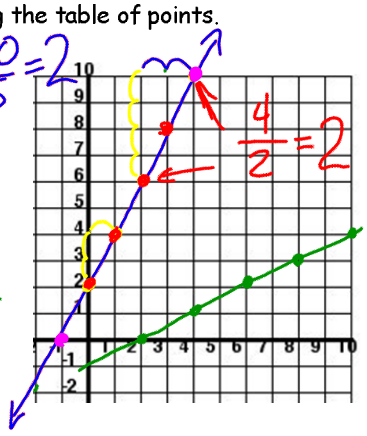
x	y
0	2
1	4
2	6
3	8
4	10

1, 1 / 2, 2

$\frac{2}{1}$

$\frac{10}{5} = 2$

$\frac{4}{2} = 2$



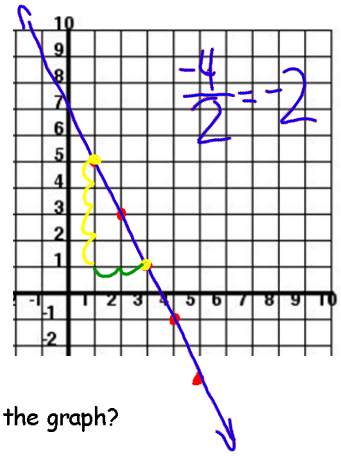
Can we find the change in y and the change in x just by looking at the graph?

Let's look at a negative rate of change:

x	y
1	5
2	3
3	1
4	-1
5	-3

1, 1, 1 / -2, -2, -2

R of C $= \frac{-2}{1} = -2$



$\frac{-4}{2} = -2$

Can we see the R of C on the graph?

What do you notice about the rate of change when it is negative?

5.1 - Finding Rate of Change from a Graph

What about these?

Y / X

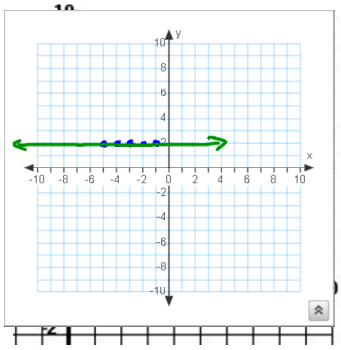
R of C

0 / 1 = 0

HORIZONTAL LINE

x	y
-5	2
-4	2
-3	2
-2	2
-1	2

+1, +1, +1 → 0, 0, 0



R of C

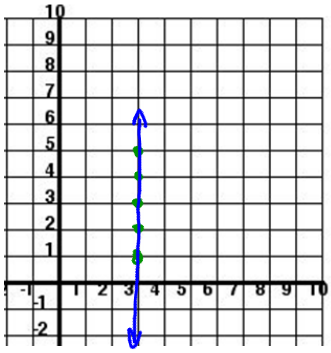
1 / 0

VERTICAL LINE

R of C IS UNDEFINED

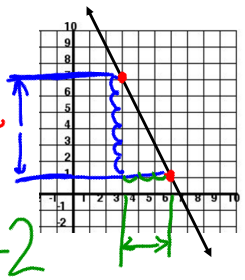
x	y
3	1
3	2
3	3
3	4
3	5

0, 0, 0 → 1, 1, 1

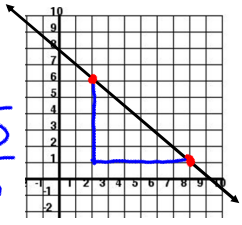


R of C on a graph:

CHANGE IN Y / CHANGE IN X



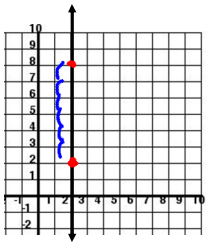
-6 / 3 = -2



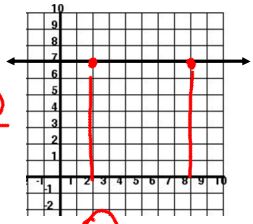
-5 / 6

-.83

6 / 0



UNDEFINED



0 / 6

= 0

SLOPE

5.1 - Finding Rate of Change from a Graph

Slope: is the rate of change of a line

Slope Formula: $\frac{y_2 - y_1}{x_2 - x_1} = m$ (m = SLOPE)

ORDERED PAIR (X, Y)

POINT 1 (x_1, y_1) POINT 2 (x_2, y_2)

$(2,3)$ $(4,7)$

$\frac{7-3}{4-2} = \frac{4}{2} = 2$

Larkin Method (stack & subtract)

POINT 1 (2, 3)

POINT 2 (4, 7)

$-2 \quad -4$

$\hookrightarrow -2 \quad \frac{-4}{-2} = 2$

Find the Rate of Change:

(this is the same thing as finding slope)

(2, 3) (4, 7)

$\frac{y_2 - y_1}{x_2 - x_1} \quad \frac{4-2}{6-10} = \frac{2}{-4} = -\frac{1}{2}$

$x_1 \; y_1 \quad x_2 \; y_2$

(10, 2) (6, 4)

(6, 4)

$4 \quad -2$

$\hookrightarrow 4 \quad \frac{-2}{4} = -\frac{1}{2}$

(1, 4) (0, 2)

(0, 2)

$1 \quad 2$

$\hookrightarrow 1 \quad \frac{2}{1} = 2$

$x_1 \; y_1 \quad x_2 \; y_2$

(5, -2) (5, 3)

$\frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - -2}{5 - 5} = \frac{5}{0}$

UNDEFINED

(3, 6) (4, 7)

(10, -2) (3, -2)

EAT LOTS OF